

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons which follow.

Claims 1, 7, and 14 are amended. No new matter is added.

After amending the claims as set forth above, claims 1-20 are now pending in this application.

Rejection Under 35 U.S.C. § 112

In Section 5 of the Office Action, claim 1 was rejected under 35 U.S.C. § 112, second paragraph. The Examiner notes that "If the Applicant intends to recite using the pattern as a mask in the 'trim etching' step it must be clearly recited." By this Amendment, Applicant modifies claim 1 to clarify the trim etching step in a way that satisfies 35 U.S.C. § 112, second paragraph. Applicants respectfully request withdrawal of the rejection.

Rejection under 35 U.S.C. § 103

In Section 7 of the Office Action, claims 1, 2, 4, 5, 7, 8, 10, 11, 13-17, 19, and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,156,485 to Tang et al. ("Tang") in view of U.S. Patent No. 4,460,435 to Maa ("Maa"). In Section 8, claims 3, 6, 9, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tang in view of Maa and further in view of U.S. Patent No. 5,804,088 to McKee ("McKee"). Applicants respectfully traverse both rejections. Tang, Maa, and McKee alone and in combination fail to disclose the claimed invention as recited in the rejected claims and are referred to below as the "cited references."

The three pending independent claims—claims 1, 7, and 14—require limitations not found in the teachings of Tang or Maa. For example:

- Claim 1 requires: "... **trim etching** the reflective metal material layer to form a mask pattern; **and removing portions of the polysilicon layer using the formed mask pattern.**"

- Claim 7 requires: "... patterning the gate material layer including selectively etching the mask layer, **trim etching** the reflective metal layer, and **removing portions of the gate material layer using the trim etched reflective metal layer as a hardmask**".
- Claim 14 requires: "... patterning a gate structure in the gate material layer by selectively removing portions of the resist layer, ARC layer, reflective layer, and gate material layer, wherein portions of the reflective layer are removed using **trim etching** and **remaining portions of the reflective layer are used as a mask to pattern the gate material layer.**"

Claims 2- 6, 8-13, and 15-20 depend from these independent claims and require the same limitations as the independent claim from which they depend.

As discussed in the Applicants' previous Amendment, the cited references do not disclose, suggest, or teach trim etching a reflective layer to form a pattern used as a mask to remove portions of a layer below the reflective layer. The Examiner cites Maa for this missing teaching. Maa teaches a patterning method where a metal layer 18 is trim etched using an isotropic etching process (See Maa, Col. 3, lines 11-59). Importantly, Maa **does not teach using this trim etched layer as a mask to remove portions of material beneath it.** Maa does not show or suggest using a trim etched reflective metal as a mask. Maa uses resist as a mask. (See Maa, Col. 4, lines 7-18.) In contrast, Applicants teach selectively etching polysilicon using remaining portions of reflective metal layer as a hard mask (see present application, Para. [0036], for example).

McKee does not provide the teachings missing from Tang and Maa. McKee teaches the trim etching of an ARC layer. McKee does not teach trim etching a reflective layer and using the remaining portions of the reflective layer to pattern a gate material layer. Therefore, there is no suggestion in any of the cited references for using the trim etched reflective layer as a mask.

Accordingly, the rejections of the claims under 35 U.S.C. § 103(a) based on Tang, Maa, and McKee cannot be properly maintained. Applicant respectfully requests withdrawal of the rejections.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

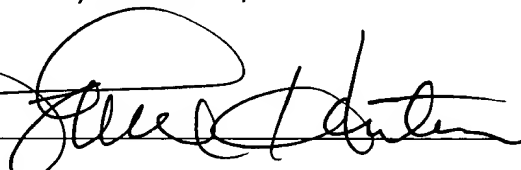
The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date

April 15, 2003

By



FOLEY & LARDNER

Customer Number: 26371



26371

PATENT TRADEMARK OFFICE

Telephone: (414) 297-5728

Facsimile: (414) 297-4900

Paul S. Hunter

Attorney for Applicant

Registration No. 44,787